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NOTICE OF ALLOWANCE AND FEE(S) DUE

22801 7590 10/08/2009

LEE & HAYES, PLLC
601 W. RIVERSIDE AVENUE
SUITE 1400
SPOKANE, WA 99201

EXAMINER

SWEARINGEN, JEFFREY R

ART UNIT

PAPER NUMBER

2445

DATE MAILED: 10/08/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,626	06/25/2003	Apurva F. Dalia	MS1-3729US	5035

TITLE OF INVENTION: LOOKUP PARTITIONING STORAGE SYSTEM AND METHOD

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$0	\$0	\$1510	01/08/2010

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS** FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail** **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

22801 7590 10/08/2009

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SPOKANE, WA 99201

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,626	06/25/2003	Apurva F. Dalia	MS1-3729US	5035

TITLE OF INVENTION: LOOKUP PARTITIONING STORAGE SYSTEM AND METHOD

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$0	\$0	\$1510	01/08/2010

EXAMINER	ART UNIT	CLASS-SUBCLASS
SWearingen, Jeffrey R	2445	709-218000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB-122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB-47; Rev 03-02 or more recent) attached. Use of a **Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY AND STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____
Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.



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10/606,626	06/25/2003	Apurva F. Dalia	MSI-3729US	5035
22801	7590	10/08/2009	EXAMINER	
LEE & HAYES, PLLC 601 W. RIVERSIDE AVENUE SUITE 1400 SPOKANE, WA 99201			SWEARINGEN, JEFFREY R	
			ART UNIT	PAPER NUMBER
			2445	

DATE MAILED: 10/08/2009

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 662 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 662 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Interview Summary

Application No.

10/606,626

Applicant(s)

DALIA ET AL.

Examiner

Jeffrey R. Swearingen

Art Unit

2445

All participants (applicant, applicant's representative, PTO personnel):

(1) Jeffrey R. Swearingen.

(3) _____.

(2) Jacob Rohwer.

(4) _____.

Date of Interview: 17 September 2009.

Type: a) ☒ Telephonic b) ☐ Video Conference

c) ☐ Personal (copy given to: 1) ☐ applicant 2) ☐ applicant's representative

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☒ No.

If Yes, brief description: _____.

Claim(s) discussed: _____.

Identification of prior art discussed: _____.

Agreement with respect to the claims f) ☒ was reached. g) ☐ was not reached. h) ☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Applicant and the Examiner agreed on an examiner amendment placing the claims in condition for allowance. The proposed amendment discussed is attached.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

/Jeffrey R. Swearingen/
Examiner, Art Unit 2445

/NIVEK SRIVASTAVA/
Supervisory Patent Examiner, Art Unit 2445

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135, (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiner's Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

Notice of Allowability**Application No.**

10/606,626

Examiner

Jeffrey R. Swearingen

Applicant(s)

DALIA ET AL.

Art Unit

2445

- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendments and remarks of 5/18/09, interview of 9/17/09.
2. ☒ The allowed claim(s) is/are 14-22, 25-30, 33, 50 and 52-54.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying Indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date ____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 20090917.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☒ Other Appendix to Interview Summary.

/NIVEK SRIVASTAVA/
Supervisory Patent Examiner, Art Unit 2445

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Jacob Rohwer on 9/17/2009.

The application has been amended as follows:

1-13. (Canceled)

14. (Currently Amended) A computer implemented method of managing access to a storage resource for one of a plurality of network-based applications in a multiple server storage system, the method comprising:

obtaining a resource identifier from a front end server;

utilizing the resource identifier to lookup, in a resource lookup store of a lookup partitioning service server, a partition of a storage server associated with the resource identifier;

in an event ~~[[said]] the~~ partition of ~~[[said]] the~~ storage server is associated with the resource identifier, granting access to the storage resource by providing a location of ~~[[said]] the~~ partition of ~~[[said]] the~~ storage server to ~~[[said]] the~~ front end server; and
in an event ~~[[said]] no~~ partition of ~~[[said]] the~~ storage server is ~~[[not]]~~ associated with the resource identifier:

failing to locate a mapping to the storage resource;
determining a load balancing factor for each storage partition of a plurality of storage partitions;
using the load balancing factors to determine a new storage partition in which a new storage resource should be created and creating [[a]] the new storage resource in [[a]] the new storage partition;
mapping the resource identifier to the new storage partition in the resource lookup store;
associating the resource identifier with said storage partition in said resource lookup store; and
providing a location of [[said]] the new storage partition to [[said]] the front end server,
wherein determining a load balancing factor for each storage partition comprises:
given n storage partitions, determining the number of mapping counts C for each of the n storage partitions; and
calculating a load balancing factor (LBF_m) for each storage partition m using the following:

$$LBF_m = (1/C_m) / (1/C_1 + 1/C_2 + \dots + 1/C_n).$$

15. **(Currently Amended)** The method of Claim 14, wherein [[said]] the location of [[said]] the partition of [[said]] the storage server is on one of a plurality of storage servers.

16. (Currently Amended) The method of Claim 14, ~~including a~~ wherein the plurality of storage partitions, ~~said plurality including~~ include a primary storage partition and a redundant storage partition each containing ~~[[said]]~~ the storage resource.

17. (Currently Amended) The method of Claim 16, wherein ~~[[said]]~~ the primary storage partition and ~~[[said]]~~ the redundant storage partition are each located on separate storage servers of ~~[[said]]~~ a plurality of storage servers.

18. (Previously Presented) The method of Claim 17, wherein, if the primary storage partition is unavailable, the storage server location is the redundant storage partition.

19. (Currently Amended) The method of Claim 14, further comprising determining which lookup partitioning service server of a plurality of lookup partitioning service servers will provide wherein ~~[[said]]~~ the looked-up storage server location in response to the resource identifier.

20. (Currently Amended) The method of Claim 19, wherein determining which lookup partitioning service server will provide ~~[[said]]~~ the looked-up storage server location comprises processing the resource identifier through a hash function to provide a hashed resource identifier associated with a particular lookup partitioning service server.

21. **(Previously Presented)** The method of Claim 20, wherein each lookup partitioning service server is associated with a predetermined set of hashed resource identifiers.
22. **(Currently Amended)** The method of Claim 14, further comprising moving the storage resource from one storage partition to ~~a new~~ another storage partition and updating ~~[[said]]~~ the resource lookup store with ~~said new~~ the another storage partition.
23. **(Canceled)**
24. **(Canceled)**
25. **(Currently Amended)** The method of ~~Claim 14~~ Claim 24, wherein ~~[[said]]~~ the load balancing ~~factor is~~ are further based on a value selected from the values consisting of: a mapping number, ~~a count of mapping accesses,~~ and a manual weighting value.
26. **(Currently Amended)** The method of ~~Claim 14~~ Claim 24 further comprising adjusting a manual weighting value to increase ~~[[the]]~~ a usage of ~~said one of [[said]]~~ a storage ~~server~~ servers.

27. (Currently Amended) The method of ~~Claim 14~~Claim 24, further comprising adjusting a manual weighting value to decrease ~~[[the]] a~~ usage of ~~said one of [[said]] a~~ storage ~~server~~servers.

28. (Currently Amended) A computer readable storage medium containing computer-executable instructions for performing ~~[[the]] a~~ method of managing access to a storage resource for one of a plurality of network-based applications in a multiple server storage system, the computer-executable instructions comprising instructions ~~[[for]]~~ comprising:

receiving a resource identifier associated with the storage resource from a front end server;

utilizing the resource identifier to lookup, in a resource lookup store of a lookup partitioning service server, a storage partition associated with the resource identifier;

in an event the storage partition is associated with the resource identifier:

locating the storage partition of a storage server; and

sending the location of ~~[[said]] the~~ storage partition ~~of said storage server~~ to ~~[[said]] the~~ front end server to grant access to ~~[[said]] the~~ storage resource;
and

in an event the storage partition is not associated with the resource identifier:

failing to locate a mapping to the storage resource;

determining a load balancing factor for each storage partition of a plurality of storage partitions;

using the load balancing factors to determine a new storage partition in which a new storage resource should be created and creating [[a]] the new storage resource in [[a]] the new storage partition;

mapping the resource identifier to [[said]] the new storage partition in [[said]] the resource lookup store; and

sending a location of [[said]] the new storage partition to [[said]] the front end server,

wherein determining a load balancing factor for each storage partition comprises:

given n storage partitions, determining the number of mapping counts C for each of the n storage partitions; and

calculating a load balancing factor (LBF_m) for each storage partition m using the following:

$$LBF_m = (1/C_m) / (1/C_1 + 1/C_2 + \dots + 1/C_n).$$

29. (Currently Amended) The computer-readable storage medium method of Claim 28, further comprising determining which lookup partitioning service server of a plurality of lookup partitioning service servers will locate [[said]] the storage partition in response to [[said]] the resource identifier.

30. (Currently Amended) The computer-readable storage medium method of Claim 28, further comprising relocating the storage resource from one storage partition to a

different storage partition and updating the mapping of the resource identifier at [[said]]
the lookup partitioning service server.

31. (Canceled)

32. (Canceled)

33. (Currently Amended) The computer-readable storage medium ~~method~~ of Claim
28 ~~Claim 32~~, wherein [[said]] the load balancing ~~factor is~~ factors are further based on a
value selected from the values consisting of: a mapping number, ~~a count of mapping~~
~~accesses~~, and a manual weighting value.

34-49. (Canceled)

50. (Currently Amended) A lookup partitioning server comprising:
a processing unit;
at least one primary lookup partition; and
at least two redundant lookup partitions which mirror two respective different
primary lookup partitions stored on other look-up partitioning servers;
a memory configured to store computer-executable instructions configured to
manage access to a plurality of storage resources at a plurality of storage servers, the
computer-executable instructions performing acts comprising:

receiving a resource identifier associated with a storage resource from a front end server;

utilizing the resource identifier to lookup, in a resource lookup store, a storage partition associated with the resource identifier;

in an event a particular storage partition is associated with the resource identifier:

locating the particular storage partition of a storage server; and

sending a location of the particular storage partition of the storage server to the front end server to grant access to the storage resource; and

in an event no particular storage partition is associated with the resource identifier:

failing to locate a mapping to the storage resource;

determining a load balancing factor for each storage partition of a plurality of storage partitions;

using the load balancing factors to determine a new storage partition in which a new storage resource should be created and creating the new storage resource in the new storage partition;

mapping the resource identifier to the new storage partition in the resource lookup store; and

sending a location of the new storage partition to the front end server;

wherein determining a load balancing factor for each storage partition comprises:
given n storage partitions, determining the number of mapping counts C for each of the n storage partitions; and
calculating a load balancing factor (LBF_m) for each storage partition m using the following:

$$LBF_m = (1/C_m) / (1/C_1 + 1/C_2 + \dots + 1/C_n).$$

51. (Canceled)

52. (Currently Amended) The lookup partitioning server of Claim 50~~claim 51~~, wherein using the load balancing factors to determine a new storage partition comprises:

generating a random number R , where R is a real number between 0 and 1;
ranking the load balancing factors in ascending order;
locating a particular storage partition, where the sum of all the load balancing factors ranked lower than the load balancing factor corresponding to the particular storage partition is less than or equal to R , and the sum of all the load balancing factors ranked lower than the load balancing factor corresponding to the particular storage partition plus the load balancing factor corresponding to the particular storage partition is greater than R .

53. (New) The method of Claim 14, wherein using the load balancing factors to determine a new storage partition comprises:

generating a random number R , where R is a real number between 0 and 1;

ranking the load balancing factors in ascending order;

locating a particular storage partition, where the sum of all the load balancing factors ranked lower than the load balancing factor corresponding to the particular storage partition is less than or equal to R , and the sum of all the load balancing factors ranked lower than the load balancing factor corresponding to the particular storage partition plus the load balancing factor corresponding to the particular storage partition is greater than R .

54. (New) The computer-readable storage medium of Claim 28, wherein using the load balancing factors to determine a new storage partition comprises:

generating a random number R , where R is a real number between 0 and 1;

ranking the load balancing factors in ascending order;

locating a particular storage partition, where the sum of all the load balancing factors ranked lower than the load balancing factor corresponding to the particular storage partition is less than or equal to R , and the sum of all the load balancing factors ranked lower than the load balancing factor corresponding to the particular storage partition plus the load balancing factor corresponding to the particular storage partition is greater than R .

2. The following is an examiner's statement of reasons for allowance: Applicant's method of determining a load balancing factor to select the appropriate resource identifier, using the specific load balancing equation and determining the number of mapping counts is not taught or suggested by the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey R. Swearingen whose telephone number is (571)272-3921. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivek Srivastava can be reached on 571-272-7304. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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